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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,955	04/14/2004	Ming-Chun Chou	N1161-00026	5433

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DUANE MORRIS, LLP
IP DEPARTMENT
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103-4196

EXAMINER

KARLS, SHAY LYNN

ART UNIT	PAPER NUMBER
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1744

MAIL DATE	DELIVERY MODE
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08/28/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/823,955

Applicant(s)

CHOU ET AL.

Examiner

Shay L. Karls

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 21 and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>4/14/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of group I (claim 1-20) in the reply filed on 6/25/07 is acknowledged.

Claims 21-22 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Election was made **without** traverse in the reply filed on 6/25/07.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 9-13, 19 and 20 are rejected under 35 U.S.C. 102(a/e) as being anticipated by Oikawa et al. (USPN 6651287).

Oikawa teaches a device comprising a light source (27a) positioned to generate at least one light beam across a plane and a light detector (27b) for detecting the light beam. When a brush (21) contacts a plane, the light beam is interrupted by the brush.

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With regards to claim 2, the light detector generates a first indication if the light beam is not interrupted and a second indication if the light beam is interrupted by the brush (see flow chart in figure 6).

With regards to claim 3, there is a processor for processing the first and second indications (col. 5, lines 5-26).

With regards to claim 9, there is a calibration unit having a surface that defines the plane (figure 17, elements 41-42).

With regards to claim 10, the light source and the light detector are on the surface of the calibration unit (figure 17).

With regards to claim 11, Oikawa teaches a wafer cleaning system comprising a wafer rotating mechanism (10), a brush (21), a light source (27a) positioned to generate at least one light beam across a plane and a light detector (27b) for detecting the light beam. When the brush (21) contacts the plane, the light beam is interrupted by the brush.

With regards to claim 12, the light detector generates a first indication if the light beam is not interrupted and a second indication if the light beam is interrupted by the brush (see flow chart in figure 6).

With regards to claim 13, there is a processor for processing the first and second indications (col. 5, lines 5-26).

With regards to claim 19, there is a calibration unit having a surface that defines the plane (figure 17, elements 41-42).

With regards to claim 20, the light source and the light detector are on the surface of the calibration unit (figure 17).

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Claims 1-3, 9, 11-13 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al. (USPN 5947134).

Kim teaches a device comprising a light source (31) positioned to generate at least one light beam across a plane and a light detector (32) for detecting the light beam. When a brush (12, 14) contacts the plane, the light beam is interrupted by the brush.

With regards to claim 2, the light detector generates a first indication if the light beam is not interrupted and a second indication if the light beam is interrupted by the brush (first indication is initial distance and second indication is final distance).

With regards to claim 3, there is a processor for processing the first and second indications (39).

With regards to claim 9, there is a calibration unit having a surface that defines the plane (11 and 38).

With regards to claim 11, Kim teaches a wafer cleaning system comprising a wafer rotating mechanism (11), a brush (12, 14), a light source (31) positioned to generate at least one light beam across a plane and a light detector (32) for detecting the light beam. When the brush (12, 14) contacts the plane, the light beam is interrupted by the brush.

With regards to claim 12, the light detector generates a first indication if the light beam is not interrupted and a second indication if the light beam is interrupted by the brush (first indication is initial distance and second indication is final distance).

With regards to claim 13, there is a processor for processing the first and second indications (39).

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With regards to claim 19, there is a calibration unit having a surface that defines the plane (11 and 38).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4-5 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oikawa ('287).

Oikawa teaches all the essential elements of the claimed invention however fails to teach that when the brush interrupts the light beam, the brush stops. Oikawa teaches the opposite wherein when the brush interrupts the light, the brush moves. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the controller so that rather than having the interrupted laser beam be indicative of the brush moving, the interrupted laser beam would indicate that the brush needs to stop. Reversal of parts is a modification that

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has been considered to be within the level of ordinary skill in the art. *In re Gazda*. 104 USPQ 400, 402. MPEP 2144.

Claims 6-7 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oikawa ('287).

Oikawa teaches all the essential elements of the claimed invention however fails to teach manually stopping the brush when the brush interrupts the light beam. Oikawa teaches automatically controlling the movement of the brush. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the controller so the brush needs to be manually stopped when interrupting the beam. Modifying manual parts to make them automatic and modifying automatic parts to making parts manual are both modifications that have been considered to be within the level of ordinary skill in the art. *In re Venner*. 120 USPQ 192, 194. MPEP 2144.

Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oikawa ('287).

Oikawa teaches all the essential elements of the claimed invention however fails to teach an indicator light for when the light beam is interrupted by the brush. Oikawa instead teaches an alarm when the brush does not interrupt the light beam. As stated above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the controller so that rather than having the interrupted laser beam be indicative of the brush moving, the interrupted laser beam would indicate that the brush needs to stop. This in turn would then mean that the alarm would be activated when the brush interrupted the beam. Reversal of parts is a modification that has been considered to be within the level of ordinary skill in the art. *In re*

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Gazda. 104 USPQ 400, 402. MPEP 2144. Additionally, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the alarm with an indicator light since alarms and indicator lights are both well known in the art as a means for providing a signal. Additionally, the claim would have been obvious because the substitution of one known element for another would have yielded predictable results to one of ordinary skill the in art at the time of the invention.

Claims 1-5, 9-15 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasashima (JP 2002313765) in view of Tateyama et al. (USPN 5375291).

Kasashima teaches a wafer rotating mechanism (122) and a brush (130). There is a pressure sensor (132) located in the brush to determine when the brush contacts the surface of the wafer. When the brush applies sufficient pressure to the wafer, as determined by the processor and controller (150) the brush stops moving vertically. Kasashima teaches all the essential elements of the claimed invention however fails to teach that the sensor for causing the brush to stop moving is a laser sensor. Tateyama teaches a position sensor comprising a light source and a light detector (71, 72) and a wafer interrupts the light beam a brush (42) cleans the wafer surface. The position sensor of Tateyama is for the wafer rather than for the brush however the reference is solely used to show the invention of a laser position sensor. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the pressure position sensor of Kasashima for the laser position sensor of Tateyama since these two position sensors are well known art-recognized equivalents. The laser position sensor would be positioned horizontally along the wafer rotating mechanism to allow the brush to move vertically until interrupting the laser beam. Furthermore, the claim would have been obvious because the

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substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claims 6-7 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasashima (JP 2002313765) in view of Tateyama et al. (USPN 5375291).

Kasashima in view of Tateyama teach all the essential elements of the claimed invention however fail to teach manually stopping the brush when the brush interrupts the light beam. Kasashima in view of Tateyama teaches automatically controlling the movement of the brush. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the controller so the brush needs to be manually stopped when interrupting the beam. Modifying manual parts to make them automatic and modifying automatic parts to making parts manual are both modifications that have been considered to be within the level of ordinary skill in the art. *In re Venner*: 120 USPQ 192, 194. MPEP 2144.

Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasashima (JP 2002313765) in view of Tateyama et al. (USPN 5375291) and further in view of Oikawa ('287).

Kasashima in view of Tateyama teach all the essential elements of the claimed invention however fail to teach an indicator light for when the light beam has interrupted by the brush. Oikawa teaches a laser position sensor as well as an alarm that is in connection with the position sensor. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the alarm with an indicator light since alarms and indicator lights are both well known in the art as a means for providing a signal. Substitution of one known element for another would have yielded predictable results to one of ordinary skill the in art at the time of the

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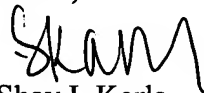
invention. Additionally, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the laser position sensor of Kasashima in view of Tateyama with a light indicator as taught by the modified Oikawa reference so that the operator of the device can determine when the brush is being moved or needs to be moved.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shay L. Karls whose telephone number is 571-272-1268. The examiner can normally be reached on 7:00-4:30 M-Th, alternating F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on 571-272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Shay L. Karls
Patent Examiner
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